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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/815,516

03/31/2004

William C. Cain

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10/12/2006

WESTERN DIGITAL TECHNOLOGIES, INC.

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EXAMINER

CHEN, ALAN S

ART UNIT

PAPER NUMBER

2182

DATE MAILED: 10/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/815,516

Applicant(s)

CAIN ET AL.

Examiner

Alan S. Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 03/31/04&04/11/06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1,2,13,18 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by US Pat. No. 7,013,336 to King.
3. Per claim 1, King discloses a method (*Fig. 3 shows the system that the method of Figs. 4 and 5 are operated on*) of displaying states of a peripheral data storage (*Fig. 3, elements 174 and 176 display states of the various SCSI devices shown of Fig. 3*) comprising a data storage device (*Fig. 3, elements 173, one of which can be data storage device; Column 1, lines 20+ disclose storage as hard disks, e.g., for a RAID*), a data storage system controller (*Fig. 2, element 118*), a user-actuated signaling subsystem (*Fig. 3, element 140, the SAF-TE Processor (SEP) acts as facilitating signaling of status of the SCSI devices in Fig. 3 to the data storage system controller; Column 3, lines 29+ disclose SEP provides status of the enclosure to the data storage system controller; it serves as a target role of the user/initiator, which is the host*), a user display subsystem adapted to display the states (*Fig. 3, elements 174 and 176 display states of the various SCSI devices shown of Fig. 3*), and a peripheral data

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storage controller host interface adapted for communication with a host system (*Fig. 3, element 141, SCSI interface communicates with host*), the method comprising:

determining a state of the peripheral data storage system (*Fig. 4, element 205-209, host inquires SEP for status/state information; Column 5, line 58-Column 6, line 25 disclose various state information is determined*); displaying a first display state via the user display subsystem if the peripheral data storage system is in an idle state (*Column 6, lines 18-65 disclose drive operational status is displayed on LEDs, idle being a status, e.g., no data being transferred*); displaying a second display state via the user display subsystem if the peripheral data storage system is in a state corresponding to receiving a signal from the user-actuated signaling subsystem (*Column 6, lines 18-25 discloses SEP receives data from host for various statuses, e.g., error, state of array, etc.*); displaying a third display state via the user display subsystem if the peripheral data storage system is in a dynamically active state (*Column 6, lines 18-25, state of array is a normal active state*); and displaying a fourth display state via the user display subsystem if the peripheral data storage system is in an off state (*Column 6, lines 18-25, state of array is offline*).

4. Per claim 2, King discloses claim 1, King further disclosing the user display subsystem comprises an electro-mechanical switch for turning on/off power of the peripheral data storage system (*Column 10, lines 5-15, each SEP has electromechanical components e.g., power supplies to switch on/off drives*).

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5. Per claim 13, King discloses claim 1, King further discloses the off state corresponds to an off state of the data storage device (*Column 6, lines 25, offline is an off state of the disk drive or disk drive array*).
6. Per claim 18, King discloses claim 1, King further disclosing the peripheral data storage controller host interface is adapted for communication with the host system via USB cable (*Fig. 2, element 106; Column 9, lines 3-11*).
7. Per claim 19, King discloses claim 1, King further disclosing the peripheral data storage system comprises a disk drive system and wherein the data storage device is a disk drive (*Column 1, storage system is a disk array*).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:
 1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
10. Claims 3-9 are rejected under 35 USC 103(a) as being unpatentable over King in view of US Pat. Pub. No. 2005/0128626 to Suzuki et al. (Suzuki).

King discloses claim 2 in addition to having both a plurality of LEDs and a LCD display to signal to the user the status/states of the peripheral data storage system (Fig. 3, elements 174 and 176; Column 10, lines 15-22 expressly disclose "...the SEP monitors the status of each component and turns ON/OFF various LEDs, alarms, displays messages on an LCD or other display...").

King does not disclose expressly the details of the actual visual display, such as when the status/states of the peripheral data storage system is displayed on the LCD screen, if it is alphanumeric characters, or if the LED displays the status/states, the distinct type of flashing/signaling employed by the LEDs.

Suzuki discloses an implementation of displaying a status/state of a storage system, where a different and distinct LED signaling type is employed for each status/state one wishes to show for the storage system. Paragraph 104 of Suzuki shows that when the drive power source is normal, the LEDs stay lit. If not normal, they have blinking pattern. A green LED is used to emit lighting patterns related to the operating state of the disks. A red LED is shows an abnormal state, etc. Suzuki further suggests using the LEDs together to convey further states. No LED display would indicate an off condition.

Suzuki and King are analogous art because they are from the same field of endeavor in the visually display of the status of a storage device.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to have one distinct type of lighting from the LED or display a specific

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alphanumeric character or pattern to convey each status/state of the storage system/device.

The suggestion/motivation for doing so would have been to avoid the confusion of using the same visual identifier for various states/statuses, and have one specific visual identifier per status/state. It is clearly design choice how one wish to flash the LED, or specific character/pattern to be displayed alphanumerically. As long as one distinct visual identifier corresponds to one specific status/state, the user can always reference or map out the message clearly.

Therefore, it would have been obvious to combine Suzuki with King for the teaching of having a unique visual identifier for each different status/state to prevent misinterpretation by the user of the condition of the storage system.

11. Claims 10-12 and 14-17 are rejected under 35 USC 103(a) as being unpatentable over King.

12. Per claims 10-12 and 15-17, King discloses claim 1. King further discloses mount/dismount (*Column 1, lines 25-35*) and backing up of information on the peripheral data storage system (*Column 1, lines 20+ disclose use of the storage array as a RAID, which provides redundancy/backup of data to prevent loss*).

King does not disclose expressly the signals that the host generates, with respect to the mount/dismount and backup actions, as corresponding to user-inputted requests that are received by the user-actuated signaling subsystem (*the SEP*) and the latter subsequently generating another signal, e.g., to activate the LED or LCD displays. King does not disclose the various types of back-up scenarios possible, e.g., on-demand

backing up or a scheduled back-up with the RAID, or disclose the user actuated signaling subsystem handles user-inputted requests using electro-mechanical switches.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to have signals generated by the mount/dismount and backup up operations of the disk array and RAID. Furthermore, it would have been obvious to have various back-up scenarios.

The suggestion/motivation for doing so would have been that one of ordinary skill in the art knows that mount/dismount and backup are fundamental and critical operations of a disk array and RAID, thus displaying the status of these operations via the LED or LCD is clearly evident. In order for the LED or LCD to functionally display the status/states of the disk array and RAID, signaling to the SEP must occur since King discloses the SEP as the controller for the LEDs and LCDs (*Column 10, lines 15-22*). In addition, implementation of the SEP to receive the signaling is determined by design choice in how the designer wishes to implement it, e.g., via electro-mechanical switches, purely electrical switching, etc.

Therefore, it would have been obvious to have mounting/dismounting and backup operations displayed as states/statuses on the LED and LCD, the displaying of these states/statuses requiring the signaling between the SEP and the host.

13. Per claim 14, King discloses claim 1. King further discloses switching display states based on monitoring the status of each disk array component and turning on/off LEDs and displaying messages on the LCD based on the current state (*Column 10, lines 15-22*).

King does not disclose expressly the details of the signaling handshakes between the host and the user display subsystem in switching from one state to another.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to perform the necessary signaling handshakes between the host and the user display subsystem when switching states.

The suggestion/motivation for doing so would have been to keep both the host and user display subsystem aware of the current state of the disk array and RAID.

Therefore, it would have been obvious to perform handshaking between the host and user display subsystem to maintain concurrency between both.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Patents and patent related publications are cited in the Notice of References Cited (Form PTO-892) attached to this action to further show the state of the art with respect to ways to indicate the status/state of a storage system via LEDs and display screens.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan S. Chen whose telephone number is 571-272-4143. The examiner can normally be reached on M-F 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim N. Huynh can be reached on 571-272-4147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ASC
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